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SALVAGE OF TIMBER FROM OXBOW BURN to PREVENT DOUGLAS-FIR BEETLE LOSS

by

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Problem - During late August of 1966 a forest fire burned over approximately 47,000 acres of timber in the Oxbow and Smith River drainages in Douglas and Lane Counties of western Oregon. This timber consisted mainly of old- and second-growth Douglas-fir with an estimated ten percent of the understory and 25 percent of the overstory still green. The center of the fire, comprising about one-third the total area, was consumed by a very hot fire that scorched the full bole length of most trees and either removed the foliage or turned it brown. There is little green material left in this area. The remaining two-thirds of the fire consists of burn containing islands of green timber with fingers of fire burning out into the green edge and small islands of burn out in the surrounding green timber. Within this area nearly half the trees have green tops.

There has been a history of Douglas-fir beetle outbreaks attacking and killing green and damaged trees in and adjacent to large forest fires in the Oregon Coast Range. These bark beetles attack and produce broods within the dead and dying fire-injured trees the year of the fire and the following year. Two years after the fire the emerging beetle broods, finding the fire-killed trees are no longer suitable, attack green trees adjacent to the fire and also fly out into the surrounding green stands in search of suitable host material.

There are many objectives that must be considered in the planning of the salvage of fire-killed timber. When possible and practical, this salvage should be undertaken using methods which will prevent or reduce the buildup of beetles. This is especially important where the saving of the few remaining green trees in a burn is desired. The remaining green trees within the Oxbow burn constitute such a situation.

Fire damage - A hot ground fire swept through the cutover areas within the burn and destroyed most of the reproduction. Damage to the old-growth and second-growth Douglas-fir can roughly be placed in five tree damage classes. These classes are:

Class 1. - Less than ten feet of the bole has been scorched by ground fire. The foliage is still green and has suffered no heat damage. The trees have an excellent chance for recovery but may be close to dead and dying trees which will be a source for attacking beetles in 1968.

Class 2. - From ten to fifty feet of the bole scorched by fire. The foliage is still green but may have suffered heat damage. Chances are good for recovery but these trees may be weak enough to attract beetle attacks in 1968.

Class 3. - Bole has been scorched from 25 feet up to 100 feet and the foliage shows signs of heat damage but most of the needles are still green. Foliage color change and needle drop may occur this winter. These trees have some chance of recovery but should be very attractive for attacking beetles in 1967 and 1968.

Class 4. - Bole has been scorched the entire length and most if not all the foliage is brown. These are dead and dying trees that will probably be attacked by the beetles in the spring of 1967. These trees could produce a good brood of beetles in 1968.

Class 5. - The entire tree is black and the foliage has been burned off. Trees are dead and may be too badly burned and dry to attract beetles. If they are attacked, conditions are such that they may not produce beetle broods of any quantity.

Throughout the fire there are burned trees of all damage classes, but in general, the fire can be separated into three areas with the majority of trees in any one area in two or three damage classes. These areas are:

Area one or core area consists of the central one-third of the burn, mainly on the Smith River side of the divide. The fire in this area must have been extremely hot as most of the trees fall into damage classes 4 and 5.

There will probably be considerable beetle activity here in 1967 but it is unlikely that good broods will develop in the majority of these trees as they are drying out rapidly and brood development conditions should not be favorable. Salvage in this area to prevent Douglas-fir beetle loss should be given low priority.

Area two is the largest area and surrounds the burned out core and contains burned trees mainly in damage classes two through four. Within this area are many large and small islands of green trees where there has been very little, if any, fire damage. Surrounding each island is a belt of trees with varying degrees of burn. Many trees in this area will be favored by attacking beetles in the spring of 1967. The resulting broods may emerge in the spring of 1968 to attack the weakened trees surrounding the green islands and overflowing into the healthy green trees within the islands. These green trees within the burn perimeter have been classed as high value and a major effort should be made to save them. Therefore, salvage of burned trees in this area should be given first priority in plans to prevent loss to the Douglas-fir beetle.

Area three is the half-burned area around the perimeter of the fire and consists mainly of many fingers of burned trees extending out into the green stands and small islands of burned trees outside the main fire edge. This area should be highly attractive to attacking beetles in 1967 and should produce good broods in 1968. Killing of green trees may be high in 1968 or 1969. While the loss of beetle-killed green trees could be as great here as any place in the burn, this loss will not be as vital as the loss of the few remaining green trees within the burn. Therefore, priority for salvage in this area should be secondary to Area Two and when it is undertaken a great number of the trees in damage class three should be removed. This removal of some trees that might not be attacked is recommended in areas where the loss of damaged green trees that might not live will not disrupt or slow up salvage.

Summary

It is understood that many objectives must be considered in the planning of the salvage of timber from the Oxbow burn. Where future losses from Douglas-fir beetle is of prime consideration it is suggested that the heavy burned areas be given low priority and salvage prior to the spring of 1968 be concentrated in the areas where there are islands of green timber within the burn. If time permits, damaged trees on the perimeter of the burn can then be salvaged, followed by burned trees in the spot fires outside the main burn area.